APPENDIX G

Water Quality Management

APPENDIX G

WATER QUALITY MANAGEMENT
BEST MANAGEMENT PRACTICES AND PROCESS

INTRODUCTION

The Forest Service water quality maintenance and improvement measures called Best Management Practices (BMP) were developed in compliance with Section 208 of the Federal Clean Water Act, PL92-500, as amended. After a lengthy development and public review process from 1977 to 1979, the practices developed by the Forest Service were certified by the State Water Resources Control Board and approved by EPA. The signing of a 1981 Management Agency Agreement (MAA) resulted in the formal designation of the Forest Service as the water quality management agency for the public domain lands it administers. The BMP are the measures both the State and Federal water quality regulatory agencies expect the Forest Service to implement to meet water quality objectives and to maintain and improve water quality. There are currently 98 practices documented, 97 of which are certified as Best Management Practices. The remaining practice (5.5 Tractor Windrowing) is still being improved before referral to the State and EPA for certification and approval. In a like manner, work continues on developing new management practices and evaluating the effectiveness of the existing BMP. Due to the dynamic nature of management practice development and refinement, the original Forest Service publication documenting BMP is continually being updated. The current publication reference is; WATER QUALITY MANAGEMENT FOR NATIONAL FOREST SYSTEM LANDS IN CALIFORNIA, U.S. Forest Service, Pacific Southwest Region publication, 1979. This publication is hereby incorporated by reference into this document. Work is under way to republish the updated version of this text as a Soil and Water Conservation Handbook.

Water quality management is administered on National Forest lands through the continued implementation of BMP and through the guidance of a 1981 Management Agency Agreement with the State of California Water Resources Control Board.

IMPLEMENTATION PROCESS

Forest Plans are broad level planning documents that encompass the entire forest and a multitude of different management activities. Because of the physical-biological diversity of any given National Forest (different soils, vegetation, slopes, presence of surface water, etc.) and the mixture of activities that can occur on various portions of the Forest, site specific methods and techniques for implementing the BMP are not identified at the Forest Planning level. For each individual project that is initiated to implement the Forest Plan a separate site specific environmental assessment is conducted. The appropriate BMP necessary to protect or improve water quality and the methods and techniques of implementing the BMP are identified at the time of this onsite, project specific assessment. In this manner the methods and techniques can be tailored to fit the specific physical-biological environment as well as the proposed project activities. There are commonly many methods available for implementing a BMP, and not all are applicable to every site. An example is BMP 2.7 Control of Road Drainage. This BMP dictates that roads will be correctly drained to disperse water runoff to minimize the erosive effects of concentrated water. There are many ways to drain a road correctly; e.g., outslope the road surface, install water bars, install French Drains, inslope the road surface, and install culverts, etc. It is during the onsite environmental assessment of a specific road construction project proposal that the appropriate method or combination of methods to correctly drain the road are identified.

After the methods and techniques of implementing the appropriate BMP are identified, they are discussed by the project interdisciplinary team. As a result of discussions, the appropriate mix of implementation methods and techniques are selected and incorporated into the environmental document as

required mitigation measures. These mitigation measures are then carried forward into project plans and implementation documents; e.g., contract language, design specifications, etc. to assure they are part of the project work accomplished. Implementation on-the-ground is assured by the Forest Service official responsible for on-site administration of the project. Supervisory quality control of BMP implementation is attained through review of environmental assessments and contracts, field reviews of projects, and monitoring the quality of the water in the project area when warranted. BMP effectiveness monitoring will be done to assure that the BMP are effective in maintaining water quality when implemented.

BEST MANAGEMENT PRACTICES

There are 98 practices identified in eight different resource categories. They are as follows:

TIMBER

1.1 Timber Sale Planning Process
1.2 Timber Harvest Unit Design
1.3 Use of Erosion Hazard Rating for Timber Harvest Unit Design
1.4 Use of Sale Area Maps for Designating Water Quality Protection Needs
1.5 Limited Operating Period of Timber Sale Activities
1.6 Protection of Unstable Areas
1.7 Prescribing the Size and Shape of Clearcuts
1.8 Streamside Management Zone Designation
1.9 Determining Tractor Loggable Ground
1.10 Tractor Skidding Design
1.11 Suspended Log Yarding in Timber Harvesting
1.12 Log Landing Location
1.13 Erosion Prevention and Control Measures During Timber Sale Operations
1.14 Special Erosion Prevention Measures on Disturbed Land
1.15 Revegetation of Areas Disturbed by Harvest Activities
1.16 Log Landing Erosion Prevention and Control
1.17 Erosion Control on Skid Trails
1.18 Meadow Protection During Timber Harvesting
1.19 Streamcourse Protection
1.20 Erosion Control Structure Maintenance
1.21 Acceptance of Timber Sale Erosion Control Measures Before Sale Closure
1.22 Slash treatment in Sensitive Areas
1.23 Five-Year Reforestation Requirement
1.24 Nonrecurring "C" Provision That Can Be Used for Water Quality Protection
1.25 Modification of the Timber Sale Contract

ROAD AND BUILDING SITE CONSTRUCTION

2.1 General Guidelines for the Location and Design of Roads
2.2 Erosion Control Plan
2.3 Timing of Construction Activities
2.4 Road Slope Stabilization (Preventative Practice)
2.5 Road Slope Stabilization (Administrative Practice)
2.6 Dispersion of Subsurface Drainage from Cut and Fill Slopes
2.7 Control of Road Drainage
2.8 Constraints Related to Pioneer Road Construction
2.9 Timely Erosion Control Measures on Incomplete Road and Stream Crossing Projects

ROAD AND BUILDING SITE CONSTRUCTION (Cont'd)

2.10 Construction of Stable Embankments
2.11 Minimization of Sidecast Material
2.12 Servicing and Refueling Equipment
2.13 Control of Construction in Streamside Management Zones
2.14 Controlling In-channel Excavation
2.15 Diversion of Flows Around Construction Sites
2.16 Stream Crossings on Temporary Roads
2.17 Bridge and Culvert Installation
2.18 Regulation of Streamside Gravel Borrow Areas
2.19 Disposal of Right-of-way and Roadside Debris
2.20 Specifying Riprap Composition
2.21 Water Source Development Consistent with Water Quality Protection
2.22 Maintenance of Roads
2.23 Road Surface Treatment to Prevent Loss of Materials
2.24 Traffic Control During Wet Periods
2.25 Snow Removal Controls to Avoid Resource Damage
2.26 Closure or Obliteration of Temporary Roads
2.27 Restoration of Borrow Pits and Quarries
2.28 Surface Erosion Control at Facility Sites

MINING

3.1 Administering Terms of the U.S. Mining Laws (Act of May 10, 1872) for Mineral Exploration and Extraction on National Forest System Lands
3.2 Administering Terms of BLM Issued Permits or Leases for Mineral Exploration and Extraction on National Forest System Lands
3.3 Administering Common Variety Mineral Removal Permits

RECREATION

4.1 Sampling and Surveillance of Designated Swimming Sites
4.2 On-site Multi-disciplinary Sanitary Surveys Will be Conducted to Augment the Sampling of Swimming Waters
4.3 Provide Safe Drinking Water Supplies
4.4 Documentation of Water Quality Data
4.5 Control of Sanitation Facilities
4.6 Control of Refuse Disposal
4.7 Assuring that Organizational Camps Have Proper Sanitation and Water Supply Facilities
4.8 Water Quality Monitoring Off-Road-Vehicle Use According to a Developed Plan
4.9 Sanitation at Hydrants and Faucets Within Developed Recreation Sites
4.10 Protection of Water Quality Within Developed and Dispersed Recreation Sites
4.11 Location of Pack and Riding Stock Facilities in Wilderness, Primitive, and Wilderness Study Areas

VEGETATIVE MANIPULATION

5.1 Seed Drilling on the Contour
5.2 Slope Limitations for Tractor Operation
5.3 Tractor Operation Excluded from Wetlands and Meadows
5.4 Revegetation of Surface Disturbed Areas
5.5* Tractor Windrowing on the Contour

VEGETATIVE MANIPULATION (Cont'd)

5.6 Soil Moisture Limitations for Tractor Operation
5.7 Contour Disking
5.8 Pesticide Use Planning Process
5.9 Apply Pesticide According to Label and EPA Registration Directions
5.10 Pesticide Application Monitoring and Evaluation
5.11 Pesticide Spill Contingency Plan
5.12 Cleaning and Disposal of Pesticide Containers and Equipment
5.13 Streamside and Wet Area Protection During Pesticide Spraying
5.14 Controlling Pesticide Drift During Spray Application

FIRE SUPPRESSION AND FUELS MANAGEMENT

6.1 Fire and Fuels Management Activities
6.2 Consideration of Water Quality in Formulating Fire Prescriptions
6.3 Protection of Water Quality from Prescribed Burning Effects
6.4 Minimizing Watershed Damage from Fire Suppression Efforts
6.5 Repair or Stabilization of Fire Suppression Related Watershed Damage
6.6 Emergency Rehabilitation of Watersheds Following Wildfires

WATERSHED MANAGEMENT

7.1 Watershed Restoration
7.2 Conduct Floodplain Hazard Analysis and Evaluation
7.3 Protection of Wetlands
7.4 Oil and Hazardous Substance Spill Contingency Plan
7.5 Control of Activities Under Special Use Permit
7.6 Water Quality Monitoring
7.7 Management by Closure to Use (Seasonal, Temporary, and Permanent)

GRAZING

8.1 Range Analysis, Allotment Management Plan, Grazing Permit System, and Permittee Operating Plan
8.2 Controlling Livestock Numbers and Season of Use
8.3 Controlling Livestock Distribution Within Allotments
8.4 Rangeland Improvements

* Has not been certified as a BMP at this time.